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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,631	04/03/2000	Alan Balkany		4315

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EXAMINER	
TO, BAOQUOC N	

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/541,631	BALKANY, ALAN	
	Examiner	Art Unit	
	Baoquoc N. To	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5 and 18-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 18-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 5, 16, 19-21, 23 and 25-27 and 30-32 are amended in the amendment filed on 08/22/2005. Claims 1-3, 5, 16 and 18-32 are pending in this application.

Claim Objections

2. Claims 24-25 and 30 are objected to because of the following informalities: According to the heading in the remarks claims 24-25 and 30 are pending; however, these claims are ***strikethrough*** which indicate these claims are not pending. For the examination purpose, examiner treats these claims are still pending. Appropriate correction is required.

Response to Arguments

3. Applicant's arguments filed 08/22/2005 have been fully considered but they are not persuasive.

The examiner indicates claim 5, 25 and 30 to be allowable only if rewritten in independent form including ***all of the limitations of the base claim and any intervening claims***. However, the applicant has not done exactly as indicating in the previous office action. Therefore, the language of claim 20 is not the same as to claim 1, therefore, by incorporating the language of claim of claim 5 does not put claim 20 in the condition for allowance.

Applicant argues claim 1(b)(3) by referring the specification page paragraph 2, 3 and figure 3 to shows the however the exactly language of paragraph 2, 3 and fig.3 is not in the claim 1. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon

which applicant relies (i.e., mutual-consecutive tuples) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues "Bugajski doe not teach leaf nodes that represent a subset of dictionary values."

The examiner respectfully disagrees with the above argument because claim 20(b)(1) recites "each leaf node corresponds to one of said dictionaries" not "leaf nodes that represent a subset of dictionary values."

Applicant also argues "since claim 20 recites a method of allowing a plurality of trees to share common dictionaries, possibly representing subsets of said dictionaries, and cited prior art doesn't, it does not anticipate claim 20."

The examiner respectfully disagrees with the above argument. Claim 20 does not recite "a method of allowing a plurality of trees to share common dictionaries"

Applicant argues "claim 26(b)(3) recites the use of a gate filed for interior nodes. Neither the cited text, nor anywhere else in Bugajski is said gate field taught. Since claim 26(b)(3) recites a gate field, and the prior art doesn't, it does not discloses said claim."

The examiner respectfully disagrees with the above argument. The claim 26(b)(3) recites "setting the value of said gate filed for each said interior node, to indicate which of said interior node's branches lead to leaf nodes in said subset" which

similar to dictionary is created for each field wherein each field value is associated with a numerical index value a... (col. 9, lines 44-65 and col. 10 , lines 10-20).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 16, 17, 19-24 are 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Bugajski (US. Patent No. 5,592,667).

Regarding on claim 1, Bugajski teaches a method for storing a plurality of parallel data element sequences comprising the step of:

(a) creating a dictionary of unique values for each of said data element sequences (dictionary created for each field), whereby each dictionary associates a numeric index with each unique value in the corresponding sequence (each field value is associated with numerical index values...however, leads to the creation of a table of associative memories whose two components are indexes to the memory tables of the nodes corresponding to the derivative branches or "children") (col. 9, lines 61);

(b) forming an n-aray tree with leaf and interior nodes (terminal or non-terminal nodes) (col. 9, line 61) where:

(1) each leaf node (branches or children) corresponds to one of said dictionaries (dictionary) (col. 9, lines 54-61),

(2) each interior node (each none-leaf or non-terminal node in the tree (such as 105, 108 etc.) associates a numeric index with tuples of numeric indexes from the other subordinate leaf or interior nodes (braches or children) (col. 9, lines 56-61), and

(3) interior node are capable of storing one or more sequences of mutually-consecutive tuples by representing said sequences in a form that uses less storage space than representing said sequences as individual tuples (associative memory assigning a numerical index value to each unique index value to each unique combination of index values of the two nodes from which that non-terminal node is derived) (col. 15, lines 20-25), and

(4) one or more interior node are capable of:

i. recording the addition of a tuple that extends a tuple sequence by modifying one or more fields in the representation of said sequence that are capable of representing the length of said sequence (col. 8, lines 11-13), or

ii. recording the addition of a tuple that invalidates an existing tuple sequence by splitting said tuple sequences into one or more subsequences, wherein none of the tuples of said subsequences contain any element of said added tuple, or

iii. recording the addition of a tuple that has not been previously added to said interior node, wherein said added tuple does

not extend a tuple sequence, by adding said tuple to a tuple collection , or

iv. any combination of two or more of i, ii, and iii.

Regarding on claim 2, Bugajski teaches each unique value of a leaf node and each unique tuple of an interior node is associated with a count of the number of times that value or implied tuple of values occurred in the parallel data element sequences (col. 4, lines 56-67 and col. 4, lines 1-5).

Regarding on claim 3, Bugajski teaches a means for efficiently processing a subset of a tree's leaves, comprising the following steps:

(a) defining of a gate field in interior nodes (each field value associated with a numerical index value) (col. 9, lines 55-59),

(b) setting each of said gate field's values, to indicate which of the corresponding interior node's branches lead to leaf nodes in said subset (children or branches) (col. 9, lines 55-69).

(c) following paths that lead to said leave (col. 12, lines 55-67 and col. 13, lines 1-12), and

(d) processing the leaves encountered (col. 12, lines 55-67 and col. 13, lines 1-12).

Regarding on claim 5, Bugajski teaches the method of claim 1 wherein a) a plurality of trees share one or more common dictionaries (col. 10, lines 5-10), and b) at least one of said trees is distinct from and represents a subset of value from one of said dictionaries (col. 10, lines 5-10).

Regarding on claim 16, Bugajski teaches the method of claim 20, further including a means for efficiently processing a subset of a tree's leaves, comprising the following steps:

a) defining of a gate field in interior nodes (each field value associated with a numerical index value) (col. 9, lines 55-59),

(b) setting each of said gate field's values, to indicate which of the corresponding interior node's branches lead to leaf nodes in said subset (children or branches) (col. 9, lines 55-69).

(c) following paths that lead to said leave (col. 12, lines 55-67 and col. 13, lines 1-12), and

(d) processing the leaves encountered (col. 12, lines 55-67 and col. 13, lines 1-12).

Regarding on claim 18, Bugajski teaches the method claim 3 wherein said processing comprises using values or tokens at said leaf nodes to reconstruct a subset of a stored record (col. 8, lines 15-20).

Regarding on claim 19, Bugajski teaches method of claim 18 further including the step of adding one or more of said reconstructed record subsets to another tree (col. 8, lines 15-20).

Regarding on claim 20, Bugajski teaches a computer-implemented method for improving storing a plurality of parallel data element sequences comprising the step of:

(a) creating a dictionary of unique values for each of said data element sequences (dictionary created for each field), whereby each dictionary associates a

numeric index with each unique value (each field value is associated with numerical index values...however, leads to the creation of a table of associative memories whose two components are indexes to the memory tables of the nodes corresponding to the derivative branches or "children") (col. 9, lines 61);

(b) forming an n-aray tree with leaf and interior nodes (terminal or non-terminal nodes) (col. 9, line 61) where:

(1) each leaf node (branches or children) corresponds to one of said dictionaries (dictionary) (col. 9, lines 54-61),

(2) each interior node (each none-leaf or non-terminal node in the tree (such as 105, 108 etc.) associates a numeric index with tuples of numeric indexes from the other subordinate leaf or interior nodes (braches or children) (col. 9, lines 56-61), wherein the forming step comprises:

(c) defining a problem space comprising:

1) a set of state such that each of state represents a tree design and contains a set of leaves and zero or more interior nodes, wherein each said interior node has zero or more other node as children (col. 9, lines 45-67), and

2) a value function, giving a numeric ranking of the value of any state's design (col. 10, lines 27-41),

(d) defining one or more operator that transform one state to another (col. 10, lines 27-41), and

(e) searching said problem space, starting from an initial state and applying operator to move to another state until a state with an acceptable design is reached (col. 10, lines 27-41).

Regarding on claim 21, Bugajski teaches said method of interior node size from a function of the sizes of said interior node's child nodes (col. 4, lines 56-67 and col. 4, lines 1-5).

Regarding on claim 22, Bugajski teaches a means for efficiently processing a subset of a tree's leaves, comprising the following steps:

(a) the definition of a gate field in interior nodes (each field value associated with a numerical index value) (col. 9, lines 55-59),

(b) setting each of said gate field's values, to indicate which of the corresponding interior node's branches lead to leaf nodes in said subset (children or branches) (col. 9, lines 55-69),

(c) following paths that lead to said leave (col. 12, lines 55-67 and col. 13, lines 1-12), and

(d) processing the leaves encountered (col. 12, lines 55-67 and col. 13, lines 1-12).

Regarding on claim 23, Bugajski teaches the method of claim 22, wherein said processing comprising using values or tokens at said leaf nodes to reconstruct a subset of a stored record (col. 8, lines 21-48).

Regarding on claim 24, Bugajski teaches the method of claim 23, further including the step of adding one or more said reconstructed record subsets to another tree (col. 8, lines 4-48).

Regarding on claim 25, Bugajski teaches the method of claim 1 wherein a) a plurality of trees share one or more common dictionaries (col. 10, lines 5-10), and b) at least one of said trees is distinct from and represents a subset of value from one of said dictionaries (col. 10, lines 5-10).

Regarding on claim 26, Bugajski teaches a computer-implemented method for storage a plurality of parallel data element sequences, and efficiently processing elements from subset of said sequence, comprising:

(a) creating a dictionary of unique values for each of said data element sequences, wherein each dictionary associates a numeric index with each unique value (each field value is associated with numerical index values...however, leads to the creation of a table of associative memories whose two components are indexes to the memory tables of the nodes corresponding to the derivative branches or "children") (col. 9, lines 61),

(b) forming one or more n-ary trees with leaf and interior nodes wherein:

(1) each leaf node corresponds to one of said dictionaries (col. 9, lines 54-61),

(2) each interior node associates a numeric index with tuples of numeric index with tuples of numeric indexes from other

subordinate leaf or interior nodes (braches or children) (col. 9, lines 56-61),

(3) a gate field is defined for one or more interior nodes (col. 2, lines 42-50),

(c) processing the leaves corresponding to said subset of sequences by:

(1) setting the value of said gate field for each said interior node, to indicate which of said interior node's branches lead to leaf nodes in said subset (children or branches) (col. 9, lines 55-69),

(2) following paths that lead to said leaf nodes (col. 12, lines 55-67 and col. 13, lines 1-12), and

(3) processing said elements in said leaf nodes encountered (col. 12, lines 55-67 and col. 13, lines 1-12).

Regarding on claim 26, Bugajski teaches each unique value of a leaf node and each unique tuple of an interior node is associated with a count of the number of times that value or implied tuple of values occurred in the parallel data element sequences (col. 4, lines 56-67 and col. 4, lines 1-5).

Regarding on claim 27, Bugajski teaches each unique value of a leaf node and each unique tuple of an interior node is associated with a count of the number of times that value or implied tuple of values occurred in the parallel data element sequences (col. 4, lines 56-67 and col. 4, lines 1-5).

Regarding on claim 28, Bugajski teaches the step of adding one or more of said reconstructed record subsets to another tree (col. 8, lines 5-20).

Regarding on claim 29, Bugajski teaches the method of claim 26, wherein each unique value of a leaf node or each unique tuple of an interior node is capable of being associated with a count of the number of times that value or tuple of values occurred in the parallel data element sequences (col. 10, lines 1-9).

Regarding on claim 30, Bugajski teaches the method of claim 20 wherein:

(A) one or more interior nodes are capable of storing one or more sequences of mutually-consecutive tuples by representing said sequences in a form that uses less storage space than representing said sequences as individual tuples (associative memory assigning a numerical index value to each unique index value to each unique combination of index values of the two nodes from which that non-terminal node is derived) (col. 15, lines 20-25), and

(B) one or more interior node are capable of:

i. recording the addition of a tuple that extends a tuple sequence by modifying one or more fields in the representation of said sequence that are capable of representing the length of said sequence (col. 8, lines 11-13), or

ii. recording the addition of a tuple that invalidates an existing tuple sequence by splitting said tuple sequences into one or more subsequences, wherein none of the tuples of said subsequences contain any element of said added tuple, or

iii. recording the addition of a tuple that has not been previously added to said interior node, wherein said added tuple does not extend a tuple sequence, by adding said tuple to a tuple collection , or

iv. any combination of two or more of i, ii, and iii.

Regarding on claim 25, Bugajski teaches the method of claim 26 wherein a) a plurality of trees share one or more common dictionaries (col. 10, lines 5-10), and b) at least one of said trees is distinct from and represents a subset of value from one of said dictionaries (col. 10, lines 5-10).

Regarding on claim 29, Bugajski teaches the method of claim 20, wherein each unique value of a leaf node or each unique tuple of an interior node is capable of being associated with a count of the number of times that value or tuple of values occurred in the parallel data element sequences (col. 10, lines 1-9).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McGregor et al. (US. Patent No. 6,169,990 B1) Patent date: 01/02/2001

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is at 571-272-4041 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached at 571-272-4107.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

(571) –273-8300 [Official Communication]

BQ To
November 13, 2005

JEAN M. CORRIELUS
PRIMARY EXAMINER